



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,361	04/28/2000	GUIDO MORUZZI	027650-857	5394

7590 12/16/2004

BURNS DOANE SWECKER & MATHIS  
PO BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER

CHORBAJI, MONZER R

ART UNIT	PAPER NUMBER
----------	--------------

1744

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/530,361

Applicant(s)

MORUZZI, GUIDO

Examiner

MONZER R CHORBAJI

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-6, 15, 17, 18 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-6, 15, 17, 18 and 21-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1744

### DETAILED ACTION

**This final action is in response to the amendment received on 09/28/2004**

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 2-3, 5, 15, 17 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGeronimo (U.S.P.N. 4,494,357) in view of Koderer et al (U.S.P.N. 4,366,125).

With respect to claims 5, 15, 21-23 and 26, the DiGeronimo reference teaches a method and an apparatus (abstract and figure 2) for sterilizing a packaging sheet material, which is hydrophobic (col.3, lines 23-41) including the following: applying hydrogen peroxide solution (col.4, tables 2-3 and figure 2, 36), a drying step (figure 2, 40), a UV irradiation step (figure 2, 42) having a wavelength between about 200 nm and 320 nm (col.6, lines 43-45), air heated to a temperature from 80 degrees Centigrade to

Art Unit: 1744

150 degrees Centigrade (col.3, lines 13-14), and means for advancing the packaging material (figure 2, 32 and the arrows) continuously and at the same rate. Further, even though the DiGeronimo reference does not provide a range value for the depth of the hydrogen peroxide bath, determining the proper depth depends on the dimensions of the thickness of the packaging material, i.e., very thick laminates require a deeper bath.

This is an obvious matter of choice of design within the scope of the artisan. Also, the DiGeronimo reference teaches in col.3, lines 10-11, that a 30% hydrogen peroxide solution is used without specifying whether the percentage is weight or volume.

However, assuming a 100 ml of solution and using the density of hydrogen peroxide, a 30 ml of hydrogen peroxide corresponds to 42.2 g of hydrogen peroxide, which is equivalent to 38 percent by weight. The DiGeronimo reference recognizes the presence of microorganisms on the surfaces of the web (col.2, 10-13) and the need to sterilizing such surfaces. The specification only teaches of microorganisms without providing any significance. As a result, the microorganisms present on the surfaces of the web in the DiGeronimo reference intrinsically absorb the residual hydrogen peroxide left after the step of drying. The DiGeronimo reference fails to teach retaining a residual amount of hydrogen peroxide on the surface of the packaging material for the synergy effect between hydrogen peroxide and UV light that results in killing microorganisms. The Koder reference, which is in the art of sterilizing packaging materials, teaches the importance of the synergistic effect produced by the combination of hydrogen peroxide and UV (col.1, lines 13-18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and

Art Unit: 1744

apparatus of the DiGeronimo reference by substituting hydrogen peroxide for the liquid bath step as taught by the Kodera reference in order to achieve thorough sterilization of the packaging materials by the synergistic effect of hydrogen peroxide and UV (col.1, lines 60-63).

With respect to claims 2-3 and 24, such a feature has already been addressed above with regard to claim 22 using the DiGeronimo reference.

With respect to claims 17 and 25, the DiGeronimo reference teaches the use of lamp producing UV light source having a wavelength between about 200 nm and 320 nm (col.6, lines 43-45) and applying a stream of air heated to a temperature of between 80 degrees Centigrade to 150 degrees Centigrade (col.3, lines 13-14).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiGeronimo (U.S.P.N. 4,494,357) in view of Kodera et al (U.S.P.N. 4,366,125) and further in view of Loliger et al (U.S.P.N. 3,692,468).

The teachings of the DiGeronimo reference and the Kodera reference has been set forth as explained above with respect to claims 5, 15, 21-23 and 26; however, with respect to claim 4, the DiGeronimo reference fails to disclose a temperature for the hydrogen peroxide bath, but discloses various time intervals for immersing the packaging material in the bath. For example see col.3, lines 11-12 and col.4, lines 29-31, but fails to teach the specific time interval as recited in claim 4. The Kodera reference discloses immersing webs for one-second duration (col.6, lines 36-38). As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the immersion time interval of the DiGeronimo reference

Art Unit: 1744

as taught by the Koderia reference to one-second duration since such decrease in immersion time would result to an increase in producing sterilized packaging materials.

The Koderia reference fails to disclose an explicit temperature range (col.4, lines 4-25) for the hydrogen peroxide bath as recited in claim 4. The Loliger reference, which is in the art of sterilizing packaging material using liquid hydrogen peroxide, teaches maintaining the hydrogen peroxide bath at a temperature of 60 degree Celsius (col.2, lines 68-70). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the temperature of the hydrogen bath of the DiGeronimo reference as taught by the Loliger reference since such a modification is an obvious matter of routine experimentation that is within the scope of the artisan as evidenced by the Loliger reference.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiGeronimo (U.S.P.N. 4,494,357) in view of Koderia et al (U.S.P.N. 4,366,125) and further in view of Lagunas-Solare et al (U.S.P.N. 5,364,645).

With respect to claim 6, both the DiGeronimo reference and the Koderia reference fail to disclose the use of polychromatic UV light source. The Lagunas-Solare reference, which is in the art of surface microbial disinfection, teaches that it is known to use Polychromatic UV light for surface microbial disinfection (col.1, lines 38-41). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of DiGeronimo reference to include a polychromatic UV light source as taught by the Lagunas-Solare reference since such a source is known to be effective in surface microbial disinfection (col.1, lines 51-52 and lines 9-11).

Art Unit: 1744

6. Claims 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGeronimo (U.S.P.N. 4,494,357) in view of Kodera et al (U.S.P.N. 4,366,125) and further in view of Castberg et al (U.S.P.N. 5,744,094).

With respect to claims 18 and 27, both the DiGeronimo reference and the Kodera reference fail to disclose the use of an excimer lamp. The Castberg reference, which is in the art of sterilizing packaging materials using hydrogen peroxide and UV, discloses that it known to use an excimer lamp (col.2, lines 36-38). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of the DiGeronimo reference to include an excimer lamp as disclosed by the Castberg reference since the geometry of the beam may be altered in response to changes in fluid characteristics, i.e., aqueous hydrogen peroxide solution, in order to improve the efficiency of sterilization of wet surfaces (col.2, lines 34-38).

#### ***Remarks***

7. The 102 (b) rejection applied in the office action dated 04/22/2004 has been withdrawn. Also, exhibit A, which was submitted on 08/23/2004 has been reviewed.

#### ***Response to Arguments***

8. Applicant's arguments filed 09/28/2004 have been fully considered but they are not persuasive.

On page 13 of the Remarks section, applicant argues that, "Specifically, column 2, lines 19-23 state that an advantage of the sterilization process of the '357 patent is that sterilization can occur without use of any chemical sterilants which may have undesirable properties." The examiner disagrees. Column 2, lines 19-23 of the

Art Unit: 1744

DiGeronimo reference does not teach away from using hydrogen peroxide; however, depending on the compatibility between the material and the type of sterilant used, some not all materials can be incompatible with a certain sterilant. This disclosure teaches to choose between the various methods available to one of ordinary skill in the art for sterilizing web material.

On page 13 of the Remarks section, applicant argues that, "the '357 patent makes no mention as to how much liquid may be removed and/or retained." The DiGeronimo reference applies air heated to a temperature that falls within the recited range in the instant claims, but applies the heated air at a longer time period. It is obvious that the DiGeronimo reference removes a substantial amount of hydrogen peroxide. The Koder reference (newly applied) teaches applying heated air at a time value that falls within the recited time range in the instant claims. The combination of the two references meets the feature of removing a substantial amount while retaining some amount of the hydrogen peroxide. Further, the Koder reference recognizes the importance of the synergistic effect between hydrogen peroxide and UV that one of ordinary skill in the art would recognize to retain some amount of hydrogen peroxide in order to obtain that effect.

In looking at the DiGeronimo reference, using aqueous hydrogen peroxide is conventional in treating web material when used alone or in combination with heated air. Also, as mentioned earlier, the DiGeronimo reference teaches that compatibility between web material and sterilant is important and does not teach against using hydrogen peroxide since not all web material are damaged by such a sterilant. The



Art Unit: 1744

Kodera reference shows the importance of the combination effect of hydrogen peroxide and UV that one of ordinary skill in the art would modify the method and apparatus of the DiGeronimo reference by substituting hydrogen peroxide for the liquid bath step as taught by the Kodera reference in order to achieve thorough sterilization of the packaging materials by the synergistic effect of hydrogen peroxide and UV (col.1, lines 60-63).

**Conclusion**

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MONZER R CHORBAJI** whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

Art Unit: 1744

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT J WARDEN can be reached on (571) 272-1281. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monzer R. Chorbaji *MRC*  
Patent Examiner  
AU 1744  
12/03/2004

*Robert J. Warden, Sr.*  
ROBERT J. WARDEN, SR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700